



## Short Videos to Enhance Student Learning in Microbiological Laboratory Exercises

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# SHORT VIDEOS TO ENHANCE STUDENT LEARNING IN MICROBIOLOGICAL LABORATORY EXERCISES

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## ABSTRACT

This poster describes the use of short videos demonstrating basic microbiological techniques in a second semester course in Biological Chemistry at the Technical University of Denmark. Videos were a useful complement to the laboratory compendium, allowing students to focus on conceptual understanding of the exercise and the related theory.

**KEYWORDS:** laboratory exercises, microbiology, videos

## OBJECTIVES

1. Example on the use of short videos to enhance learning in practical laboratory exercises

## DESCRIPTION

Eight short videos were produced to enhance student learning in laboratory exercises in a second semester Bachelor of Engineering compulsory course in Biological Chemistry (7.5 ECTS) at the Technical University of Denmark (DTU) [1]. The videos demonstrate basic techniques applied in the microbiological laboratory, and were made freely available to students through YouTube and DTU's podcast channel [2]. Links were included in the written laboratory compendium to allow easy access. Each laboratory session started with an introduction of the exercise showing the related video(s). Students were encouraged to watch the videos before and after exercises to enhance learning. A written evaluation was performed at the end of the course, where 83% of the students reported having seen the videos outside class and all students felt that videos aided their understanding of the laboratory techniques. Suggestions for improvements included shortening the videos and producing additional ones explaining key concepts. Teachers reported that less time was spent on explaining what to do at the exercise thus allowing them to focus on solving misconceptions. In conclusion, videos explaining laboratory procedures were found to be a useful complement to the laboratory compendium, allowing students to focus on conceptual understanding of the exercise and the related theory.

## REFERENCES

- [1] Agersø Y., Bysted A., Jensen L. B., and Josefsen M. H. "Laboratory and project based learning in the compulsory course Biological Chemistry enhancing collaboration and technical communication between groups", 2011, 7th International CDIO Conference 2011 June 20-23, Technical University of Denmark, Copenhagen. Paper 115. Available on-line: [http://www.cdio2011.dtu.dk/upload/administrationen%20%20101/aus/cdio/conference\\_media/papers/115\\_paper.pdf](http://www.cdio2011.dtu.dk/upload/administrationen%20%20101/aus/cdio/conference_media/papers/115_paper.pdf)
- [2] Technical University of Denmark, "DTU's podcast channel". 2013. Available on-line: <http://podcast.llab.dtu.dk/feeds/23932-biologisk-kemi/>

## BIOGRAPHICAL INFORMATION

**Charlotta Löfström**, Ph. D. is an Assistant Professor in the Division of Food Microbiology at the National Food Institute, Technical University of Denmark (DTU). Her current research is within the field on food safety and focuses on the development and validation of molecular methods for detection, enumeration and characterization of foodborne pathogenic microorganism. She teaches undergraduate and graduate students at DTU in microbiology and biological chemistry.

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